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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,331	07/19/2001	Georgios Karagiannis	34648-00453	9624
38065	7590	11/17/2004	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			SHIN, KYUNG H	
			ART UNIT	PAPER NUMBER
			2143	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,331

Applicant(s)

KARAGIANNIS ET AL.

Examiner

Kyung H Shin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) ⁶ | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/4/01</u> . ⁶ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responding to application papers dated 8/03/2001
2. Claims 1 - 49 are pending. Independent claims are 1, 14, 36, 44.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1 - 3, 6, 8, 9, 10-16, 18, 38, 40-44** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Goyal et al. (US 6,785,233) in view of Pan et al. (US 6,760,306)**.

Regarding Claims 1, 14, 36, 44, Goyal discloses a method of providing dynamic quality of service (see Goyal col. 3, lines 52-55); utilizing RSVP aggregated reservation protocol (see Goyal col. 12, lines 31-35); utilizing differentiated services domains (see Goyal col. 2, lines 52-55; col. 5, line 63 - col. 6, line 3); utilizing *edge* (border in applicant's) routers and *backbone* (core in applicant's) routers (see Goyal col. 3, lines 31-40: edge routers; col. 12, lines 59-64:

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backbone routers); and utilizing a communications protocol for signaling network devices. (see col. 2, lines 42-48: “ ... *Embodiments of the present invention relate ... network resource management and end-to-end signaling between communication devices ...* ”)

Goyal does not specifically disclose a bandwidth broker (i.e. entity with memory) to enable bandwidth reservations. However, Pan discloses:

managing dynamic provisioning of QoS in each Diffserv domain by using a bandwidth broker (BB) which communicates using a predetermined protocol, and maintaining/storing RSVP aggregated states by/in the bandwidth broker to the exclusion of Border Routers. (see Pan col. 3, lines 24-28: resource manager (bandwidth broker))

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to use a resource manager (bandwidth broker) as taught by Pan. One of ordinary skill in the art would be motivated to enhance Goyal in order to strengthen the allocation of bandwidth reservations and effective processing of adjustments in bandwidth allocations. (see Pan col. 3, lines 24-26: “ ... *network device, called a resource manager, manages resources, such as bandwidth, ...* ”; col. 3, lines 59-62: “ ... *The service reservation may be made through direct communication with the resource manager ... using an appropriate protocol, such as RSVP (Resource Reservation Protocol).* ”)

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Regarding Claims 2, 15, Goyal discloses a method as in claim 1, wherein the step of managing comprises using a BB which obtains resource availability information by communicating only with BRs to the exclusion of CRs, said BB also having an aggregator and deaggregator functionality. (see col. 3, lines 31-40: resource reservation utilizing edge routers)

Regarding Claim 3, Goyal discloses a method as in claim 2, including the step of using a plurality of types of BBs and causing the BBs to interact by using RSVP aggregation. (see col. 12, lines 31-35: RSVP aggregate (grouped bandwidth reservations) implemented)

Regarding Claim 6, Goyal discloses a method as in claim 1 including the step of using Load Control Protocol, and managing, by use of a BR, resource availability and admission control into Core routers and an interior of said Diffserv domain. (see col. 12, lines 59-64: backbone (core) routers perform admission control; col. 5, line 63 - col. 6, line 3: services domains)

Regarding Claim 8, Goyal discloses a method as in claim 6 wherein the BRs contain a reservation state which stores a total amount of resources which were reserved by the Load Control Protocol . (see col. 8, line 64 - col. 9, line 2: resources (bandwidth) are reserved end-to-end)

Regarding Claim 10, Goyal discloses a method as in claim 1 which additionally

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uses integrated services architecture (Intserv), including the step of achieving interoperability between Intserv and Diffserv by using an edge router. (see col. 2, lines 52-55: differentiated services; col. 6, lines 26-31: integrated services)

Regarding Claim 11, Goyal discloses a method as in claim 1 which additionally uses integrated service architecture (Intserv), including the step of achieving interoperability between Intserv and Diffserv by using a Bandwidth Broker Deaggregator. (see col. 2, lines 52-55: differentiated services; col. 6, lines 26-31: integrated services)

Regarding Claims 12, 22, 42, 48, Goyal does not disclose utilizing the COPS protocol for communications with the bandwidth broker. However, Pan discloses a method as in claim 1, 14, 36, 44 including the step of using Common Open Policy Services (COPS) protocol as the predetermined protocol for direct communication by the BB. (see Pan col. 3, lines 59-67: COPS protocol utilized; col. 3, lines 24-28: resource manager (bandwidth broker))

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to utilize the COPS communications protocol as taught by Pan. One of ordinary skill in the art would be motivated to enhance Goyal in order to strengthen management of bandwidth reservations.

Regarding Claims 13, 23, 43, 49, Goyal does not disclose utilizing the SNMP protocol for communication with the bandwidth broker. However, Pan discloses

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a method as in claim 1, 14, 36, 44 including the step of using Simple Network Management Protocol (SNMP) as the predetermined protocol for direct communication by the BB. (see Pan col. 9, lines 47-50: SNMP protocol utilized)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to utilize the SNMP communications protocol as taught by Pan. One of ordinary skill in the art would be motivated to enhance Goyal in order to strengthen management of bandwidth reservations.

Regarding Claim 16, Goyal discloses a method as in claim 15, including the step of using a plurality of types of BBs and causing BBs to interact by using RSVP aggregation. (see col. 12, lines 31-35: RSVP aggregate group for bandwidth reservations)

Regarding Claims 18, 40, 46, Goyal does not disclose a bandwidth broker for the storage of bandwidth reservation information. However, Pan discloses a method as in claims 14, 36, 44 wherein said BB is capable of using an RSVP aggregation protocol, including the step of managing stored RSVP aggregation states. (see Pan col. 3, lines 24-28: resource manager (bandwidth broker) utilizing RSVP aggregated states)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to utilize a bandwidth broker as taught by Pan. One of ordinary skill in the art would be motivated to enhance Goyal in order to strengthen management of bandwidth reservations.

Regarding Claim 19, Goyal discloses a method as in claim 14 including the step of a border router using Load Control Protocol and its successors, and managing, by use of a BR, resource availability and admission control into core routers and an interior of said Diffserv domain. (see col. 12, lines 59-64: backbone (core) routers perform admission control; col. 5, line 63 - col. 6, line 3: differentiated services domain)

Regarding Claims 20, 21, Goyal discloses a method as in claim 14 which additionally uses integrated service architecture (Intserv), including the step of achieving interoperability between Intserv and Diffserv by using an edge router, and a border router informing the BB about resources that are reserved by a Load Control Protocol and its successors. (see col. 6, lines 26-31: integrated services; col. 2, lines 52-55: differentiated services; col. 3, lines 41-45: edge routers implement resource management)

Regarding Claims 24, 25, Goyal does not disclose a bandwidth broker for bandwidth reservations. However, Pan discloses a bandwidth broker which operates using the method of claims 1 and 11. (see Pan col. 3, lines 24-28: resource manager (bandwidth broker))

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to utilize a bandwidth broker as taught by Pan. One of ordinary skill in the art would be motivated to enhance Goyal in

order to strengthen the management of bandwidth reservation.

Regarding Claims 26, 27, Goyal does not disclose a bandwidth broker using RSVP aggregation bandwidth reservations. However, Pan discloses a bandwidth broker aggregator which operates using the method of claims 1 and 11. (see Pan col. 3, lines 24-28: resource manager utilizing RSVP aggregated)

Regarding Claims 28, 29, Goyal does not disclose a bandwidth broker using integrated services bandwidth reservations. However, Pan discloses a bandwidth broker deaggregator which operates using the method of claims 1 and 11. (see Pan col. 3, lines 24-28: resource manager utilizing integrated services)

Regarding Claims 30, 31, Goyal discloses a border router which operates using the method of claims 1 and 11. (see col. 3, lines 31-40: edge (border) routers utilized in bandwidth reservations)

Regarding Claims 32, 33, Goyal discloses a core router which operates using the method of claims 1 and 11. (see col. 12, lines 59-64: backbone (core) routers utilized in bandwidth reservations procedures)

Regarding Claims 34, 35, Goyal does not disclose a bandwidth broker using RSVP aggregation with edge (border) and backbone (core) routers. However, Pan discloses a differential services architecture which comprises one of a

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bandwidth broker aggregator, a bandwidth broker deaggregator, a border router, and a core router, operating using the method of claims 1 and 11. (see Pan col. 3, lines 24-28: resource manager (bandwidth broker))

Regarding Claim 37, Goyal discloses a network subsystem as in claim 36 wherein the Diffserv domain includes Border Routers (BRs) and Core Routers (CRs), and wherein the BB obtains resource availability information by communicating with BRs. (see col. 3, lines 41-45: edge router utilized for bandwidth reservation; col. 5, line 63 - col. 6, line 3: differentiated services domain)

Regarding Claim 38, Goyal does discloses a bandwidth broker for a RSVP aggregated system and an integrated services (deaggregated) bandwidth broker. However, Pan discloses a network subsystem as in claim 37, comprising a plurality of BBs including Bandwidth Broker Aggregators and Bandwidth Broker Deaggregators controlling RSVP aggregation. (see col. 3, lines 24-28: resource manager (bandwidth broker))

Regarding Claims 41, 47, Goyal discloses a network subsystem as in claims 36, 44, wherein a border router is capable of using Load Control Protocol, and wherein a BR enables managing resource availability and admission control into core routers and an interior of said Diffserv domain. (see col. 3, lines 41-45: edge

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(border) devices managing resources; col. 12, lines 59-64: admission control with backbone (core) routers)

6. **Claims 4, 5, 7, 9, 17, 39, 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Goyal-Pan, as applied to claims 1, 36, 44 above, and further in view of Soumiya et al. (US 6,760,774).**

Regarding Claims 4, 5, 7, 9, 17, 39, 45, Goyal discloses a method of providing quality of service for differentiated services domains utilizing edge and backbone routers and signaling communications protocols in bandwidth reservations (see Goyal col. 2, lines 42-48: “ ... *Embodiments of the present invention relate ... network resource management and end-to-end signaling between communication devices ...* ”)

Goyal does not disclose reallocation (re-reservation) of bandwidth and adjustments required due to reallocation. However, Soumiya discloses a method as in claim 2, including the step of refreshing a reservation of resources, which reservation has been accomplished during a previous refreshment period, and including the step of not refreshing reserved resources in each Diffserv domain which resources have to be released in a next refreshment period. (see Soumiya col. 10, lines 10-15: bandwidth allocation (reservation) adjustments)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Goyal to enable a bandwidth management system to allow reallocation of bandwidth reservations as taught by Soumiya. One of

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ordinary skill in the art would be motivated to enhance Goyal in order to strengthen the bandwidth reservation management and allow for effective management when bandwidth adjustments occur. (see Soumiya col. 2, lines 42-48: “ ... *Embodiments of the present invention relate ... network resource management and end-to-end signaling between communication devices ...* ”)

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung H Shin whose telephone number is (571) 272-3920. The examiner can normally be reached on 9 am - 7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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KHS

Kyung H Shin
Patent Examiner
Art Unit 2143

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Nov. 13, 2004

William C. Vaughn
Primary Examiner
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